TPM/IPM Weekly Report
for Arborists, Landscape Managers & Nursery Managers

Coordinator Weekly IPM Report:
Stanton Gill, Extension Specialist, IPM for Nursery, Greenhouse and Managed Landscapes, sgill@umd.edu. 301-596-9413 (office) or 410-868-9400 (cell)

Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant Disease Information: Karen Rane (Plant Pathologist) and David Clement (Extension Specialist)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
Design, Layout and Editing: Suzanne Klick (Technician, CMREC)

Disease Time Continues
By: Stanton Gill

May 9 to May 13 made many people feel like they were living in Seattle in the rainy season. Every day it was cloudy, cold, and often rainy. This week has some sunshine, but the rainy periods are continuing. In this weather, foliar diseases flourish. Sites with poorly drained soils will retain moisture and result in root rots occurring.

The damage from all of this rain and cloud clover will show up in June and July. Be prepared to explain this situation to your customers when we move into the summer months and everyone has forgotten about this extended rainy period.
Roses and Sawflies
By: Stanton Gill

Three weeks ago I mentioned that sawflies would be starting activity soon. Well, they are very active this week consuming rose foliage. A landscaper brought in a sample of a Knockout rose that was heavily damaged by sawfly larvae. The larvae are feeding on the undersides of the foliage, making detection difficult.

Spinosad works well on these caterpillars. Spinosad is an insecticide based on chemical compounds found in the bacterial species, *Saccharopolyspora spinosa*. It is sold under several brand names including Conserve and Monterey Garden Bug Spray containing Spinosad. This material is not systemic, so make direct sprays to the undersides of foliage.

More on Mosquitoes
By: Stanton Gill

Last week we talked about the use of Bti and methoprene (Insect growth regulator) products for controlling the larval stage of mosquitoes. This week we will talk about physical controls. This control aspect of an Integrated Pest Management program actively eliminates mosquito development sites. You need to let your customers know that they need to clean out their gutters so pools of water do not accumulate and provide breeding sites for mosquitoes. Look around the landscape for pots, urns and children’s toys which may have accumulated water from the excessive rain of the last 3 weeks. These small pools of water are potential mosquito breeding sites.

For ornamental pools, the best fish that will feed on mosquito larvae and can be purchased is the western mosquitofish (*Gambusia affinis*). It is a species of freshwater fish. Its generic name is *Gambusia*, also commonly called gambezi. There is also an eastern mosquitofish (*G. holbrooki*). Mosquitofish are small in comparison to many other freshwater fish, with females reaching an overall length of 7 cm (2.8 in) and males at a length of 4 cm (1.6 in). The name “mosquitofish” was given because the diet of this fish sometimes consists of large numbers of mosquito larvae, relative to body size.

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Saturated Soils and Potential Nutrient Problems  
By: Andrew Ristvey

By last week, we had nearly 16 days of rainfall (for at least part of the day) for the Baltimore/Washington area. With saturated soils and poor drying conditions, plant roots in the landscape may have been stressed with low soil oxygen. This past weather system may have caused many disease issues, and several nutrient issues were also possible. Anoxic soil conditions create a chemically reducing environment. This situation tends to lower soil pH, and most micronutrients become very available in low pH soils which sometimes can cause temporary toxicities, manganese in particular. Early conditions start with pale yellow spots scattered throughout the interveinal areas of the leaf with brown spots and necrosis developing as the toxicity progresses in time. Older leaves may yellow and senesce. Some plants like ericaceous species (azaleas and pieris) will be less affected as they are adapted to acid soils and are tolerant of manganese. Some fungicides which may be used because of last week’s weather conditions contain manganese and may exacerbate the situation.

Also, root death from low soil oxygen may bring about nutrient deficiencies, especially calcium. Calcium is taken up at the root tips which are most susceptible to saturated, anoxic soil conditions. Calcium and magnesium are also less available in low pH soil conditions. As soils dry, and oxygen returns to the soil profile, pH will again rise. If you are managing clay soils in landscapes that tend to saturate intermittently, create better drainage for those beds and if possible add organic composts to decrease the compaction. These adjustments are especially useful for new beds.

Damage on Japanese Maples  
By: Karen Rane

Japanese maple damage continues. We are seeing samples of branch dieback and leaf necrosis in Japanese maples. Much of this injury is a continuation of the damage that was caused by last month’s cold periods. Opportunistic canker fungi may infect cold-injured stems, increasing the dieback symptoms. When the weather is dry, prune out dead branches back to healthy wood.
Problems with *Hydrangea macrophylla*
By: Stanton Gill

Something is wrong in the hydrangea world this spring. I received a photo two weeks ago of a *Hydrangea macrophylla* from a landscaper inquiring if we were seeing any problems with these plants this spring. After this initial inquiry, I received two more e-mails with similar questions. This week, I visited two sites with *Hydrangea macrophylla*, and in each case, the plants had no new growth on the majority of the upper branches.

The plants were producing epicormic growth from the base of the plant. I examined the plants to see if borers were an issue or if any disease could be in-play here. It appears not to be related to insect or disease activity. The warm fall and early winter and rapid temperature drop in mid-January evidently severely damaged these plants. The cold snap we had 3 weeks ago also damaged some new growth emerging from hydrangea plants. Plants appear to be recovering, but all of the new growth is coming from the crown of the plants. There may not be a great flower display this summer, but it looks like the plants will recover.

**Azalea Gall**
By: Karen Rane

We see this disease, caused by the fungus *Exobasidium vaccinii*, to some degree each year, but the cool wet weather this year has really favored disease development. Symptoms start as swollen tissue on newly expanding leaves, shoots, buds or flowers. The galls develop a white surface (as in this photo) which contains the spores of the causal fungus. A related fungus, *Exobasidium camelliae*, causes similar symptoms on camellia. Eventually the infected tissue turns brown and hardens. Although unsightly, this disease usually has very little impact on the health of affected plants. Picking off the galled tissue before the white spore layer develops will minimize inoculum development and help to manage the disease.

**Ambrosia Beetles**
Amanda Rafey, National Park Service, found frass tubes on the trunk of *Ailanthus* in Towson this week. Marie Rojas, IPM Scout, is reporting that ambrosia beetles are actively attacking styrax trees in Gaithersburg.
**Calico Scale**

Mike Jackson, Blades of Green, found calico scale on an injured maple sapling in Annapolis on May 17. This scale overwinters as second instars and molts and matures to 3rd instars in early spring. The nymphs of this scale will migrate out onto the foliage in June and feed through the summer. In the fall the immatures will migrate back to the twigs where the females overwinter.

**Monitoring:** Look for copious amounts of honeydew in late May and early June. Look for the oval-shaped, yellow-bodied crawlers in June.

**Control:** When crawlers are out, use pynproxyfen (Distance) or buprofezin (Talus) with 0.5 – 1% oil.

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**Cankerworms**

Paul Foster, Bartlett Tree Experts, saw heavy cankerworm damage in Arnold on May 20. Paul noted that there are several other huge outbreaks in Severna Park, and that it looks like a bad year in Anne Arundel County. Often, since feeding occurs early in the season, trees are able to recoup. However, after multiple years of heavy infestations in the same area, trees will be weakened, and secondary borers are likely to become a problem.

**Monitoring:** Common trees on which this species prefers to feed are white and red oaks, elm, ash, basswood, beech, black cherry, red maple, and sugar maple. It will also feed on the leaves of apple, birch, boxelder, dogwood, hickory, and many other hardwoods. The larvae are light green to sometimes dark brownish green. The light green forms have white lines along the body. Brown forms have a broad black stripe on the back. Fall cankerworms larvae have 3 pairs of prolegs at the end of the abdomen whereas spring cankerworms only have two. The adult female is wingless and lays eggs in the fall.

**Control:** Conserve and Bt can be used if needed.
Four-lined Plant Bug
Ruth Burke, American Plant Garden Center, sent a photo of foliar damage that a customer brought in to the garden center. The customer noted that the same damage was on mint. The damage is caused by the four-lined plant bug which uses its piercing/sucking mouthparts to feed on chlorophyll. It secretes a toxin in its saliva that causes white, dark, or translucent spots on the leaves. If damage is extensive, these spots coalesce and form large blotches. Heavy damage can cause leaves to turn brown and drop. The damage is sometimes mistaken for disease leafspots. They feed on a wide range of annual flowers and herbs, mainly in landscapes and nurseries. There is one generation per year so damage only occurs early in the season. The four-lined plant bug nymphs are a bright red to orange color with black dots on the abdomen. Later instars have black wing pads running halfway down the abdomen with a yellow stripe on each wing pad; their wings are not fully developed yet. Adults are usually a greenish-yellow color with four black strips running longitudinally down the wings.

Control: Acephate, TriStar. You can try neem products if they are still in the nymph stage.

Neonicotinoid Legislation Information
From: Mark Schlossberg, ProLawn Plus, Inc.

House Bill 211/Senate Bill 198 prohibits a retailer from selling a neonicotinoid pesticide unless they also sell restricted use pesticides. It also prohibits a person from using a neonicotinoid pesticide unless they are a farmer or someone under their supervision, certified applicator or someone under their supervision, or a veterinarian. Exemptions include pet care products, personal hygiene products, and indoor pest control products. The bill does not prohibit a person who is not one of the exempted parties from purchasing a neonicotinoid pesticide at an establishment that can sell it.

The bill also requires the Department of Agriculture to include ways to expand and enhance pollinator habitat in their Managed Pollinator Protection Plan. Additionally, MDA is required to do a review of the EPA Pollinator Risk Assessments and make recommendations to the legislature for pollinator protection based on EPA’s assessment.

The bill originally included provisions requiring the labeling of plants, seeds, plant material and bedding that had been treated with a neonicotinoid pesticide. The label was a warning that the product could be harmful to pollinators, earthworms, birds and aquatic species. This language was removed from the bill prior to final passage.

Cottony Camellia Taxus Scale
Marie Rojas, IPM Scout, is finding eggs under the white wax produced by the cottony camellia taxus scale that is infesting Ilex ‘Nellie R Stevens’ in Gaithesburg. Crawlers should become active in the next few weeks.

Monitoring: Look for yellowing of foliage and plant dieback in severe infestations. This soft scale produces large amounts of honeydew on which sooty mold will grow. The scale tends to accumulate on the undersides of foliage. There is one generation a year, but each female can produce over 1000 eggs so populations can build up quickly. Eggs hatch and crawlers are active in late May and early June.

Control: Wait for eggs to hatch and then treat with pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil.
**Borer in Elderberry**
Marie Rojas, IPM Scout is finding the stalk borer, *Papaipema nebris*, boring into stem tips of elderberry (*Sambucus*). This caterpillar overwinters as an adult, lays an egg in the plant tip, and the larvae are active at this time of year. It is usually found on field crops, especially corn, but it also infests woody plants. It has a wide host range of about 200 species from grasses to trees. There is one generation per year.

**Maple Petiole Borer**
Marie Rojas, IPM Scout, is finding that maple petiole borer is active on *Acer rubrum* ‘Red Sunset’ on May 15. The damage usually occurs in the spring on new tip growth on 1 to 2 year old maples. This caterpillar permanently disfigures maples by killing the new shoots.

**Control:** Prune out damaged branches.

**Willow Leaf Beetles**
Marie Rojas, is reporting that immature willow leaf beetles are feeding on corkscrew willows in Laytonsville. Larvae skeletonize leaves. Damage can be unsightly, but it usually doesn’t usually kill the tree unless infestations occur in multiple consecutive years. Asian lady bird beetles and assassin bugs are several predators that feed on willow leaf beetles.

**Oak Apple Gall**
Marie Rojas, IPM Scout, is finding oak apple galls on *Quercus rubra*. This gall is caused by tiny cynipid wasp. Damage is rarely significant so control is not necessary.
If you see yellow stippling on azalea leaves, turn them over to look for the different stages, as well as black fecal spots, of azalea lace bugs underneath

Photos: Jessica Frakes, Thrive, Inc.

Beneficial of the Week
By: Paula Shrewsbury

Aphids usually do NOT need control measures – natural enemies do the work for you!

At this time of the season there are a number of aphid species active on various plant species. Most commonly at this time of year we see an abundance of rose (Macrosiphum rosae) or potato (M. euphorbiae) aphids on roses, and spirea aphid (Spirea spiraecola) on spirea, and crapemyrtle aphid (Tinocallis kahawaluokalani) are getting going on crapemyrtles. Aphids are usually found on the new growth of plants where the growth is soft and filled with amino acids that provide nutritious food for aphids. Aphids have evolved to become quite efficient “aphid-making” organisms that reach high densities very quickly. How do they do this? During the season all aphids are females so every individual in the population is reproducing, they give live birth so no time needs to be spent in the egg stage, and they are parthenogenic so females do not have to mate to reproduce…pretty amazing insects. Even with these attributes however, the nice thing about aphid infestations is that in many situations chemical controls are not needed because there is a suite of natural enemies that ultimately reduce, and often eliminate, aphid populations. The aphid natural enemy complex includes various species of lady beetles, predatory flies such as syrphid or flower flies and Aphidoletes midges, lace wing predators, and parasitic wasps. I frequently monitor plants for populations of aphids and their natural enemies (always
interesting to watch!). The general pattern I repeatedly see is aphid populations building up to pretty high densities, followed by the appearance of various predators and parasitoids, and then a reduction in aphid densities, often to just a few or no aphids left on a plant. Natural enemies move into landscape plantings or nurseries in response to increased “food” being available. There is a suite of natural enemies that are very efficient at finding populations of aphids and knocking back their numbers to near zero.

So the take home message is: Wait! Don’t spray! The natural enemies should come – and they will win over the aphids. Also remember that once the natural enemies consume most of the aphids they will then move onto whatever else may be in the landscapes (ex. scales or spider mites) and provide biological control of other herbivores. Natural enemies will often provide biological control of herbivores if we give them a chance. If there is a need to treat aphids (ex. high amounts of honeydew, high levels of distorted new growth) then use a short residual product such as horticultural oil that will have the least detrimental impact on natural enemy populations. In addition, avoid using high nitrogen or fast release fertilizers. These fertilizers will favor aphids and lead to greater densities of and damage by aphids.

Flower or syrphid flies feed on nectar when they are adults. These true flies mimic bees.
Photo: M. J. Raupp, UMD

Flower or syrphid fly larvae are voracious predators of aphids
Photo: M. J. Raupp, UMD

Rose aphid that has a mummy-like (tan color) appearance indicates that a parasitic wasp larva in the genera Aphidius is developing within it.
Photo: M. Raupp, UMD

Aphid predatory midge (Aphidoletes) larva (bright yellow maggot) in a colony of aphids.
Photo: Whitney Cranshaw, Colorado State University, Bugwood.org
Weed of the Week
By: Chuck Schuster

The rain continues to play a role in what is happening in our turf and landscape with weeds. Several calls recently as to why bulbous buttercups are so prolific this year. With the current soil moisture levels, really wet, this plant is thriving. Other factors play into its success also.

Bulbous buttercup, *Ranunculus bulbosus*, can be found in turf, nursery and landscape settings in many areas of the United States. It is a perennial weed that prefers low fertility, poor soils, and soils that remain wet for extended periods of time.

Seedlings develop with leaves divided into three lobes, occurring on petioles. As the plant matures the central lobe will develop on an independent stalk, and the lateral lobe will be attached to the main leaf petiole. Leaves are alternate along the stem. Stems develop between ten and twenty inches in length or height and are hairy. Yellow flowers with five to seven petals develop on stalks at the end of flower stems. The root system has a corm, which is very similar to a bulb. Young plants may only present with a thickened base on the root system. This plant can be mistaken for corn buttercup, but can be distinguished by the bulbous corm on the root, which corn buttercup does not have.

Control of bulbous buttercup starts with soil improvement. Adjust pH and basic soil fertility. Soil testing is critical in knowing where soil pH and fertility is currently. The Fertilizer Use Act of 2011 requires that soil tests be obtained before the application of any \( \text{P}_2\text{O}_5 \) on established turf sites. Review pH at the same time and adjust to a low to mid 6 range. Review drainage and improve where possible. Manual removal is counterproductive unless care is used to remove the corms when digging or pulling. Many broadleaf post emergent herbicides work when this weed grows in turf including 2, 4D and dicamba. Active growth is important, coupled with more than one application. Post emergent non selective products can be used in landscape settings.

Plant of the Week
By: Ginny Rosenkranz

*Veronica austriaca* ‘Venice Blue’ is in the speedwell family. It is a compact mound forming plant that has upright and sometimes sprawling stems. ‘Venice Blue’ has bright blue saucer-shaped flowers which are large for a Veronica. The deep blue flowers cover the 10-12 inch spikes and bloom from late spring to early summer, lasting about 4 weeks. The 1 ½ inch bright green foliage is saw-toothed and the plants are cold tolerant from USDA zone 4-9. Plants grow in medium, well drained soils in full sun and should be trimmed back after flowering to encourage new foliage and enhance its spreading habit and possible intermittent re-bloom in late summer to fall. *Veronica austriaca* ‘Venice Blue’ is very heat and salt tolerant and is said to be deer and rabbit
resistant, but very welcome to butterflies and other pollinators. It can be planted as a sun loving ground cover or as an edging plant. *Veronica austriaca* ‘Venice Blue’ has no serious insect or disease problems.

*Veronica austriaca* ‘Venice Blue’ blooms for about 4 weeks in late spring to early summer

Photo: Ginny Rosenkranz, UME

### Plant Phenology Indicators

<table>
<thead>
<tr>
<th>PLANT</th>
<th>PLANT STAGE (Bud with color, First bloom, Full bloom, First leaf)</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Baptisia australis</em> ‘Blue Smoke’</td>
<td>First bloom</td>
<td>Ellicott City (May 116)</td>
</tr>
<tr>
<td><em>Iris pseudocorus</em> (yellow flag iris)</td>
<td>Full bloom</td>
<td>Ellicott City (May 20)</td>
</tr>
<tr>
<td><em>Penstemon hirsutus</em></td>
<td>Full bloom</td>
<td>Ellicott City (May 16)</td>
</tr>
</tbody>
</table>

### Degree Days (As of May 18)

- Annapolis Naval Academy (KNAK) 426 Baltimore, MD (KBWI) 425
- College Park (KCGS) 430 Dulles Airport (KIAD) 443
- Ellicott City (E3247) 397 Fairfax, VA (D4092) 556
- Frederick (KFDK) 313 Greater Cumberland Reg (KCBE) 411
- Gaithersburg (KGAI) 382 Martinsburg, WV (C1672) 378
- Natl Arboretum.Reagan Natl (KDCA) 598 Rockville (C2057) 536
- Salisbury/Ocean City (KSBY) 463 St. Mary’s City (St. Inigoes, MD-KNUI) 572
- Westminster (KDMW) 408

**Important Note:** We are now using the [Online Phenology and Degree-Day Models](http://phenology.models.gov) site.

**Use the following information to calculate GDD for your site at** the [Online Phenology and Degree-Day Models](http://phenology.models.gov) site: Select your location from the map.

- Model Category: All models
- Select Degree-day calculator
- Thresholds in: Fahrenheit F Lower: 50 Upper: 95
- Calculation type: simple average/growing dds Start: Jan 1

Once you know the GDD and / or plant phenological indicators (PPI, what plants are blooming) in your location, you can go to the [Pest Predictive Calendar](http://pestpredictivecalendar.models.gov) to determine what pests you can expect to be active soon in that location.
Commercial Horticulture Conferences

Pesticide Recertification Conference (Eastern Shore)
June 3, 2016
Register on-line

US DOT Forum
June 8, 2016: 8:00 a.m. to noon
Location: 6772 Rockawalkin RD, Hebron, MD
Contact Ginny Rosenkranz, Extension Educator, 410-749-6141 to sign up for this free US DOT Forum

Pesticide Recertification Conference
June 10, 2016
Location: Montgomery County Extension Office, Derwood, MD
Brochure is posted online

MNLGA Nursery Field Day
June 23, 2016
Location: Angelica Nurseries 11129 Locust Grove Road Kennedyville, Maryland 21645
Contact: 410-823-8684, office@mnlga.org

Hops and Drones
June 29, 2016, 4:00 PM - 8:00 PM
Location: Milkhouse Brewery at Stillpoint Farm 8253 Dollyhyde Road Mt. Airy, MD 21771
Contact: 410-823-8684, office@mnlga.org

Maryland Christmas Tree Association Summer Meeting
Saturday June 25, 2016 at Thomas Tree Farm, 3501 Hanover Pike, Manchester, MD
For info: wayne@thomastreefarm.com

Hands-on Perennials Diagnostic Workshop
July 20, 2016
Location: Perennial Farm 12017 Glen Arm Road Glen Arm, MD 21057
Contact: 410-823-8684, office@mnlga.org

Biological Control for Greenhouses and Nurseries
August 18, 2016
Location: Brookside Gardens, 1800 Glenallan Avenue, Wheaton, MD 20902
Contact: 410-823-8684, office@mnlga.org
IPMnet Has a New On-line Tool: The Pest Predictive Calendar

This Pest Predictive Calendar is intended to assist landscape managers, growers, IPM professionals and others in predicting the appearance of pest insects and mites in order to make more timely management decisions. By using the Plant Phenology Indicators (PPI) and Growing Degree Days (GDD) on this table you can anticipate when the susceptible life stage(s) (stage you want to target for control measures of pest insects and mites are active.

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